INT. J. CONTROL, 1998, VOL. 69, NO. 6, 837–839

SUBJECT INDEX (Vol. 69)

Adaptive output feedback variable-structure control design for uncertain dynamic systems, 145
Algorithm
for predictive optimal iterative learning control, 203
for robust filtering and model validation of uncertain continuous-time systems with discrete and continuous measurements, 163
Algorithms
decentralized and extended minimal control synthesis type, passivity-based analysis, 633
descent and continuation comparison, for H_2 optimal, reduced-order control designs, 647
linear, for identification in H_∞, worst-case errors, 347
Alternator control systems, multiloop, H_∞ optimal design, 85

Closed loop limit cycles existence with simultaneous nonlinearities and parametric uncertainties, 695
Communication network dynamic routing, decentralized discrete-time controller, 599
Compensators, globally stable actuator saturation type, existence, 773
Continuous systems, perturbed, with circular pole and error constraints, robust state estimation, 383
Continuous-time systems discretization, simple method to guarantee closed-loop stability, 819
Control
H_2 optimal reduced-order control designs, comparison of descent and continuation algorithms, 647
H_∞ robust type, design, exploiting ellipsoidal parameter set estimates, 271
H_∞-type, of discrete-time nonlinear system, link with its linearization, 301
composite feedback type, of discrete multiparameter singularly perturbed systems, 577
decentralized and extended minimal control synthesis algorithms, passivity-based analysis, 633
integral-variable-structure-based adaptive speed estimator, resistance identifier for an induction motor, 31
MIMO systems, optimization-based anti-windup design, 393
nonlinear, optimal, of a triple link inverted pendulum with single control input, 239
of alternator, multiloop, H_∞ optimal design, 85
of distributed parabolic systems with multiple time-varying lags, optimal, 361
of flexible robot arms with rigid offset, exponential stability of initial-boundary equation for strain feedback control, 227
of uncertain dynamic systems, adaptive output-feedback variable-structure type, 145
of underwater vehicle, discontinuous control and guiding functions, 1
of vibration, multivariable, coupled flexible structure, using QFT, 475
predictive optimal iterative learning type, 203
reduced-variance-overparametrized-pole-assignment type, 131
state feedback type, of descriptor linear systems, eigenstructure assignment and response analysis, 663
system, reliable nonlinear design using strictly redundant control elements, 315
systems fuzzy, continuous-time, Lyapunov-like stability theorems, 49
systems nonlinear, stability criteria, numerical implementation, 459
Controller
decentralized discrete-time type, for dynamic routing, 599
internal model-based type, design, using measured costs and gradients, 257
multimodel type, for constrained uncertain nonlinear systems, stability analysis, 519
neural, fixed, for nonlinear plants, design, 65

Decentralized discrete-time controller for dynamic routing, 599
Design
H_2 optimal reduced-order control, comparison of descent and continuation algorithms, 647
H_∞ optimal type, multiloop alternator control systems, 85
exploiting ellipsoidal parameter set estimates in H_∞ robust control, 271
observers for nonlinear systems, relation to distance to unobservability, 717
of fixed neural controller for nonlinear plants, 65
of internal model-based controller, using measured costs and gradients, 257
of observer, model error compensation, 329
of reliable nonlinear control system, using strictly redundant control elements, 315
optimization-based anti-windup type, for MIMO control systems, 393
Differential equations
autonomous, fourth-order, solutions, stability results, 353
periodic Riccati type, uniqueness theorems and comparison, 467

Discontinuous control and guiding functions, the underwater vehicle example, 1
Discrete
  multiparameter singularly perturbed systems, composite feedback control, 577
  observability of generalized wave equation on compact homogeneous space, 539
  system zeros, stabilization, 789
Discrete-time
  decentralized controller for dynamic routing, 599
  nonlinear system, link between H_∞ control and linearization, 301
  systems, linear, SISO, reduced variance overparametrized pole assignment control, 131
Discretization of continuous-time systems, simple method to guarantee closed-loop stability, 819
Distributed parabolic systems with multiple time-varying lags, optimal control, 361
Disturbances, estimation scheme, VSS theory-based, applications, 733

Eigenstructure assignment and response analysis in descriptor linear systems with state feedback control, 663
Errors, worst-case, of linear algorithms for identification in H_∞, 347
Estimation
  and fault detection by a bank of continuous finite-memory filters, 499
  robust, for perturbed continuous systems with circular pole and error variance constraints, 383
  scheme, for disturbances, VSS theory-based, applications, 733
Exponential tracking with disturbance attenuation and its numerical solution, 561

Fault-detection
  and state estimation by a bank of continuous finite-memory filters, 499
  systems, observer-based, time-domain optimization, 419
Filtering, robust, and model validation, for uncertain continuous-time systems with discrete and continuous measurements, 163
Fuzzy control systems, continuous-time, Lyapunov-like stability theorems, 49

Guiding functions and discontinuous control, the underwater vehicle example, 1

$\mathcal{H}_\infty$ interpolation, unimodular, for strong stabilization of MIMO systems, 797
H_2 optimal reduced-order control designs, comparison of descent and continuation algorithms, 647
H_∞
  control, link between control and linearization of discrete-time nonlinear system, 301
  optimal design of multiloop alternator control systems, 85
  robust control design, exploiting ellipsoidal parameter set estimates, 271

Identification in H_∞, using linear algorithms, worst-case errors, 347
Individual channel analysis of the turbogenerator with a power system stabilizer, 175
Integral-variable-structure-control-based adaptive speed estimator and resistance identifier for an induction motor, 31

Lyapunov functions, smooth, construction, for non-smooth systems, 443
Lyapunov-like stability theorems for continuous-time fuzzy control systems, 49

Manipulator, flexible-link-type, uncertainty compensation using nonlinear H_∞ control, 753
Matrix fraction descriptions, column (row) reduced, structural properties, 111
MIMO control systems, optimization-based antiwindup design, 393
Model
  error compensation for observer design, 329
  validation, and robust filtering, for uncertain continuous-time systems with discrete and continuous measurements, 163
Motor, induction type, adaptive speed estimator and resistance identifier, integral-variable-structure-control-based, 31
Multivariable vibration control of a coupled flexible structure using QFT, 475

Neural controller, fixed, for nonlinear plants, design, 65
Non-smooth systems, construction of smooth Lyapunov functions, 443
Nonlinear
  analysis in the presence of parametric uncertainties, 695
  plants, fixed neural controller design, 65
  systems observers, existence and design, relation to distance to unobservability, 717
Numerical implementation for stability criteria of nonlinear control systems, 459

Observability, discrete, of generalized wave equation on compact homogeneous space, 539
Observer design, model error compensation, 329
Observers for nonlinear systems, existence and design, relation to distance to unobservability, 717

Optimal control of distributed parabolic systems with multiple time-varying lags, 361
Optimization, in time domain, of observer-based fault-detection systems, 419

Parabolic systems, distributed, with multiple time-varying lags, optimal control, 361
Parametric uncertainties and nonlinearities in closed loop, existence of limit cycles, 695
Passivity-based analysis of decentralized and extended minimal control synthesis algorithms, 633
Pendulum, inverted, triple-link, with single control input, nonlinear optimal control, 239
Predictive optimal iterative learning control, 203

Reduced-order H_2 optimal control designs, comparison of descent and continuation algorithms, 647
Riccati differential equations, periodic, comparison and uniqueness theorems, 467
Robot arms, flexible, with rigid offset, strain feedback control, exponential stability of initial-boundary equation, 227
Robust state estimation for perturbed continuous systems with circular pole and error variance constraints, 383

Stability
  analysis of multimodel controller for constrained uncertain nonlinear systems, 519
  criteria, of nonlinear control systems, numerical implementation, 459
  closed-loop, simple method to guarantee, when continuous-time systems are discretized, 819
  exponential, of an initial-boundary equation arising from strain feedback control of flexible robot arms with rigid offset, 227
  results for solutions of fourth-order autonomous differential equations, 353
  theorems, Lyapunov-like, for continuous-time fuzzy control systems, 49
Stabilization
  feedback-type, of Timoshenko beam with end mass, 285
  of discrete system zeros, 789
  of MIMO systems, strong, via unimodular interpolation in $\mathscr{H}_\infty$, 797

Time domain optimization of observer-based fault detection systems, 419
Timoshenko beam with end mass, feedback stabilization, 285
Tracking, exponential, with disturbance attenuation, and its numerical solution, 561
Transfer function matrix, rational, infinite pole–zero structure, column (row) reduced MFD properties, 111
Turbogenerator with power system stabilizer, individual channel analysis, 175

Uncertain
  continuous-time systems with discrete and continuous measurements, robust filtering and model validation, 163
  dynamic systems, adaptive output feedback variable-structure control design, 145
  nonlinear systems, constrained, multimodel controller, stability analysis, 519
Uncertainty compensation for a flexible-link manipulator using nonlinear H_∞ control, 753
Underwater vehicle, guiding functions and discontinuous control, 1
Uniqueness theorems for periodic Riccati differential equations, 467

Vibration control, multivariable, of coupled flexible structure, using QFT, 475
VSS theory-based disturbance estimation scheme for MIMO systems and its applications, 733

Wave equation, generalized, on compact homogeneous space, discrete observability, 539

INT. J. CONTROL, 1998, vol. 69, NO. 6, 841–842

AUTHOR INDEX (Vol. 69)

AHMED, M. S., Design of a fixed neural controller for nonlinear plants, 65
AMANN, N., OWENS, D. H., and ROGERS, E., Predictive optimal iterative learning control, 203

BORNE, P., *see* Dubois, L.

CAO, S. G., REES, N. W., and FENG, G., Lyapunov-like stability theorems for continuous-time fuzzy control systems, 49
CHAN, C. W., and HUI, K., On the existence of globally stable actuator saturation compensators, 773
CHAN, J.-T. H., On the stabilization of discrete system zeros, 789
CHANG, J., *see* Chern, T.-L.
CHEN, C.-Y., and PERNG, M.-H., An optimization-based anti-windup design for MIMO control systems, 393
CHEN, S. B., *see* Chen, Y. Z.
CHEN, X., and FUKUDA, T., VSS theory-based disturbance estimation scheme for MIMO systems and its applications, 733
CHEN, Y. Z., LIU, J. Q., and CHEN, S. B., Comparison and uniqueness theorems for periodic Riccati differential equations, 467
CHERN, T.-L., CHANG, J., and TSAI, K.-L., Integral-variable-structure-control-based adaptive speed estimator and resistance identifier for an induction motor, 31
CHO, Y. M., *see* Rajamani, R.
COLLINS, E. G., and SADHUKHAN, D., A comparison of descent and continuation algorithms for H_2 optimal, reduced-order control designs, 647

DAVIES, R., and ZARROP, M. B., On reduced variance overparametrized pole-assignment control, 131
DAVISON, E. J., *see* İftar, A.
DE PAOR, A., *see* O'Malley, M.
DELMOTTE, F., *see* Dubois, L.
DESTEFANO, A., Discrete observability of a generalized wave equation on a compact homogeneous space, 539
DEVILBISS, S. L., and YURKOVICH, S., Exploiting ellipsoidal parameter set estimates in H_∞ robust control design, 271
DING, X., and GUO, L., An approach to time domain optimization of observer-based fault detection systems, 419
DONG, S., ZHOU, W., and LEE, P. L., Exponential tracking with disturbance attenuation (EDTA) and its numerical solution, 561
DUAN, G.-R., Eigenstructure assignment and response analysis in descriptor linear systems with state feedback control, 663
DUBOIS, L., DELMOTTE, F., BORNE, P., and FUKUDA, T., Stability analysis of a multiple-model controller for constrained uncertain non-linear systems, 519

ELTOHAMY, K. G., and KUO, C.-Y., Nonlinear optimal control of a triple link inverted pendulum with single control input, 239

FADLALMOULA, Z., ROBERTSON, S. S., O'REILLY, J., and LEITHEAD, W. E., Individual channel analysis of a turbogenerator with a power system stabilizer, 175
FENG, D.-X., *see* Shi, D.-H.
FENG, G., *see* Cao, S. G.
FERRERES, G., and FROMION, V., Nonlinear analysis in the presence of parametric uncertainties, 695
FRANCHEK, M. A., *see* Piedmonte, M. D.
FROMION, V., *see* Ferreres, G.
FUKUDA, T., *see* Chen, X.
FUKUDA, T., *see* Dubois, L.

GRIMBLE, M. J., H_∞ optimal design of multiloop alternator control systems, 85
GU, D.-W., *see* Saif, A.-W. A.
GUO, B.-Z., and LUO, Z.-H., On the exponential stability of an initial-boundary equation arising from strain feedback control of flexible robot arms with rigid offset, 227
GUO, L., *see* Ding, X.

HAYTON, G. E., *see* Mahmood, S.
HODGSON, S. P., see Stoten, D. P.
HOU, S. H., *see* Shi, D.-H.
HSIAO, F.-H., *see* Pan, S.-T.
HSIAU, L.-G., *see* Pan, S.-T.
HUI, K., *see* Chan, C. W.

İFTAR, A., and DAVISON, E. J., A decentralized discrete-time controller for dynamic routing, 599

KARAMPETAKIS, N. P., *see* Mahmood, S.
KHORASANI, K., *see* Yazdanpanah, M. J.
KOWALEWSKI, A., Optimal control of distributed parabolic systems with multiple time-varying lags, 361
KUO, C.-Y., *see* Eltohamy, K. G.

LEE, P. L., *see* Dong, S.
LEITHEAD, W. E., *see* Fadlalmoula, Z.
LIN, W., and XIE, L., A link between H_∞ control of a discrete-time nonlinear system and its linearization, 301
LIU, J. Q., *see* Chen, Y. Z.
LUO, Z.-H., *see* Guo, B.-Z.
LYNCH, A. F., and SALCUDEAN, S. E., Internal model-based controller design using measured costs and gradients, 257

MAHMOOD, S., PUGH, A. C., KARAMPETAKIS, N. P., and HAYTON, G. E., Structural properties of column (row) reduced MFDs, 111
MECKL, P. H., *see* Piedmonte, M. D.
MEDVEDEV, A., State estimation and fault detection by a bank of continuous finite-memory filters, 499
MICHALSKA, H., and REHMAN, F.-UR, Guiding functions and discontinuous control: the underwater vehicle example, 1

NWOKAH, O. D. I., *see* Piedmonte, M. D.

O'MALLEY, M., and DE PAOR, A., A simple method to guarantee closed-loop stability when continuous-time systems are discretized, 819
O'REILLY, J., *see* Fadlalmoula, Z.
ONYSHKO, S., *see* Wu, Q.
OWENS, D. H., *see* Amann, N.

PAN, S.-T., HSIAO, F.-H., and HSIAU, L.-G., Composite feedback control of discrete multiparameter singularly perturbed systems, 577
PARTINGTON, J. R., Worst-case errors of linear algorithms for identification in H_∞, 347
PATEL, R. V., *see* Yazdanpanah, M. J.
PERNG, M.-H., *see* Chen, C.-Y.
PETERSEN, I. R., *see* Savkin, A. V.
PIEDMONTE, M. D., MECKL, P. H., NWOKAH, O. D. I., and FRANCHEK, M. A., Multivariable vibration control of a coupled flexible structure using QFT, 475
POSTLETHWAITE, I., *see* Saif, A.-W. A.
PUGH, A. C., *see* Mahmood, S.

RAJAMANI, R., and CHO, Y. M., Existence and design of observers for nonlinear systems: relation to distance to unobservability, 717
REES, N. W., *see* Cao, S. G.
REHMAN, F.-UR, *see* Michalska, H.
ROBERTSON, S. S., *see* Fadlalmoula, Z.
ROGERS, E., *see* Amann, N.

SADHUKHAN, D., *see* Collins, E. G.
SAIF, A.-W. A., GU, D.-W., and POSTLETHWAITE, I., Strong stabilization of MIMO systems via unimodular interpolation in H_∞, 797
SALCUDEAN, S. E., *see* Lynch, A. F.
SAVKIN, A. V., and PETERSEN, I. R., Robust filtering and model validation for uncertain continuous-time systems with discrete and continuous measurements, 163
SEPEHRI, N., *see* Wu, Q.
SHI, D.-H., HOU, S. H., and FENG, D.-X., Feedback stabilization of a Timoshenko beam with an end mass, 285
SOH, C. B., *see* Yang, G.-H.
STEIN, J. L., *see* Tu, J. F.
STOTEN, D. P., and HODGSON, S. P., Passivity-based analysis of the decentralized and extended minimal control synthesis algorithms, 633

THORNTON-TRUMP, A. B., *see* Wu, Q.
TSAI, K.-L., *see* Chern, T.-L.
TU, J. F., and STEIN, J. L., Model error compensation for observer design, 329

UNBEHAUEN, H., *see* Wang, Z.

WANG, J., *see* Yang, G.-H.
WANG, Z., and UNBEHAUEN, H., Robust state estimation for perturbed continuous systems with circular pole and error variance constraints, 383
WU, Q., ONYSHKO, S., SEPEHRI, N., and THORNTON-TRUMP, A. B., On construction of smooth Lyapunov functions for non-smooth systems, 443
WU, X., and XIONG, K., Remarks on stability results for the solutions of certain fourth-order autonomous differential equations, 353
WU, Y.-Q., and YU, X.-H., Adaptive output feedback variable-structure control design for uncertain dynamic systems, 145

XIE, L., *see* Lin, W.
XIONG, K., Numerical implementation for stability criteria of nonlinear control systems, 459
XIONG, K., *see* Wu, X.

YANG, G.-H., WANG, J., and SOH, C. B., Reliable nonlinear control system design by using strictly redundant control elements, 315
YAZDANPANAH, M. J., KHORASANI, K., and PATEL, R. V., Uncertainty compensation for a flexible-link manipulator using nonlinear H_∞ control, 753
YU, X.-H., *see* Wu, Y.-Q.
YURKOVICH, S., *see* Devilbiss, S. L.

ZARROP, M. B., *see* Davies, R.
ZHOU, W., *see* Dong, S.